
A N
I N Q U I R Y
INTO THE
Causes of Sterility.

A N
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I N T O T H E
Causes of Sterility
I N
B O T H S E X E S ;
W I T H
I T S M E T H O D O F C U R E .

By JAMES WALKER, M. P. M. S.
CITIZEN OF THE STATE OF VIRGINIA.

— creavit Deus hominem ad imaginem suam, ad
imaginem Dei creavit illum, masculum et fæminam creavit eos.
Benedixitque illis Deus et ait; *crescite et multiplicamini et replete terram.*

Genesis, cap. 1. ver. 28.

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INAUGURAL DISSERTATION,
SUBMITTED TO THE
EXAMINATION
OF THE
Rev. JOHN EWING, S. T. P. *Provost;*
THE
TRUSTEES
AND
MEDICAL PROFESSORS
OF
The University of Pennsylvania,
FOR THE
D E G R E E
OF
DOCTOR OF MEDICINE,
ON THE TWELFTH DAY OF MAY, 1797.

Oh Woman! on a melancholy Strain is my sad Soul employed.
West's Iphigenia.

T O

JAMES WOODHOUSE, M. D.

Professor of Chemistry

IN

The University of Pennsylvania,

THIS DISSERTATION

IS RESPECTFULLY INSCRIBED,

AS A PUBLIC TESTIMONY

OF RESPECT AND ESTEEM,

BY HIS

SINCERE FRIEND

THE AUTHOR.

INTRODUCTION.

THE anxiety of mind, which appears to be universally connected with unfruitful marriages, is found to be the cause of as much evil in the world, as any of those diseases to which we are liable. Although the lives of the unhappy sufferers may not be in much danger, yet Physicians should be induced to a diligent investigation of the causes of Barrenness; for upon inquiry it appears, that many causes of Sterility are not without a remedy, many persons subject to this affection, having been certainly cured by the good old women.

THE Physician then, who is attentive to the several causes of this complaint, must be more adequate to the treating it in a proper manner, than any other person. This consideration alone would be a sufficient inducement for engaging on a subject of this importance.

WE find little mention made of Sterility, either by the ancient or modern Physicians.

WHAT we can collect from the former, concerning its causes or its cure, is so very unsatisfactory, that we are left nearly in the dark. I have not been able to find, that any of the moderns have treated of it methodically. Dr. Cullen has omitted it in his Synopsis of Nosology, but has mentioned it in a list of those disorders that he has not taken much notice of, because he was not possessed of a proper description of them.

THIS dissertation is delivered to the world with many imperfections ; and I beg the indulgence of the candid reader, and hope that he will not suppose the author has been led on by vanity or ambition, but that he has been guided altogether by one motive, that of doing good.

DISSERTATION ON STERILITY.

IT will be necessary for us, in the first place, to consider the method nature takes for the production of the Foetus, that we may the better understand the causes that may prevent the fulfillment of her designs. Although much attention has been paid to this subject, by the ancient and modern Physiologists, yet they have left us so many doubts concerning it, that it is involved in much obscurity. I shall endeavour to lay before my reader a sketch of the difference of sentiment that exists between the Physicians of the present day; for it would be useless to mention the various opinions that might be collected from the ancients. They would only shew the fertility of the imagination, and tend to prove what has been said by a celebrated Philosopher, that man is a mere credulous animal.*

WE may reckon the opinions concerning generation under two heads;

NOTE.

* In proof of this we may mention, that Drelingcourt, a teacher of the celebrated Boerhaave, has collected near three hundred conjectures from the ancients on this subject, all of which have been believed at one time or another.

EVOLUTION and EPEGENESIS. By *Evolution* is meant, the existence of organic germs.*

By *Epegenesis* it is supposed that the prepared, but unorganized rudiments of the foetus, begins to be gradually organized when it arrives at its place of destination, under certain necessary circumstances.

THE Physiologists who believe in Evolution, are divided among themselves, to which of the parents to give the foetus.

LIEWENHOECK, HEARTZOEKER and others, endeavour to prove, that it belongs to the male. The existence of living beings in the male semen, is the strongest proof they bring forward in support of this opinion. This last mentioned Physiologist, has endeavoured to impose on the world, by declaring that he discovered the foetus folded up in the body of the animalculæ, in the same manner that it is found in the womb, in time of gestation. But this is contradicted by the observations of all men, who have followed this author. The similarity of appearance of the animalculæ in the semen of different classes of animals, makes it very probable, that they are not the offspring of those animals. And the following celebrated experiment of the Abbé Spallanzani, puts the

NOTE.

* According to this doctrine, the germ of every animal, and of every plant that now lives, or is yet to live, were all created at the beginning of the world. The men and women who are now in existence, and who are to live a million of years hence, were pent up in the ovaria of our common mother Eve.

matter almost beyond the possibility of a doubt. Having procured the semen of some male Frogs which swarmed with thousands of animalculæ, he separated some of the seminal liquor, and found that it answered the end of fæcundation, as well as when it was full of those beings. This convinced him that they were not necessary to the formation of the offspring. Other Physiologists believe, that the Female contains the offspring in the ovaria. Among these the venerable Haller, and the ingenious Spallanzani, stand foremost.

WHAT led Dr. Haller to embrace this opinion was, his discovery of the connection that exists between the membrane and vessels of the chick and the yolk, soon after incubation. This he considered as an *argumentum crucis*, in favor of the co-eval existence of the chick with the yolk, which is before the connection with the cock.

A STRONG objection to this opinion is, the possibility and probability of an anastomosis which may be produced between the chick and the yolk after incubation, in the same manner it takes place between the Placenta and Uterus after the descent of the ovum into this viscus.

THE manner in which Haller has attempted to overthrow this objection, is by denying that the small and tender vessels of the embryo, should be capable of anastomosing with the great blood vessels of the yolk.

THE strongest proofs which Spallanzani brings forward to prove that the offspring are contained in the ova-

ria of the female are,—First, That the coloured specks observable in the spawn of Frogs, appear to the senses to be the same after fæcundation as before.

SECONDLY. That at a certain time after fæcundation, they partook of growth, and the coloured specks appeared to be changed into Tadpoles.

AND Thirdly, That the spawn had no shells, which he conceived they should have, to be eggs.

THERE has been as much controversy concerning the manner fætation takes place. Blumenbach and others imagine, that it begins in the womb. The dissections of brutes by the most eminent Anatomists, with a direct view to elucidate this point, ascertain it as far as such evidence can be admitted. In the dissections of small animals by De Graff, he found no discernable alteration in the uterus during the first forty hours after coition, but a gradual change was perceptible in the ovaria, and what he supposed to be the ripened origin of the future animal. At the end of that time it lost its transparency, became opaque and ruddy, and the fimbriæ were found closely applied to the ovaria, and the cavity from which the ova had been expressed was discernable, and the third day the ova could be seen in the uterus. Extrauterine fœtation also confirms this opinion, for in those cases we cannot suppose the ovum to descend into the womb, and afterwards to ascend into the abdomen. This being ascertained, the greatest difficulty still exists. How does the semen arrive at the ovaria? By some it is supposed to be absorbed and carried through the circulating mass, and

that by its specific action it impregnates the ovum. This was probably conjectured, because there appeared not a more probable method of its arriving there.

IT cannot be by the force acquired in its discharge from the male, as has been supposed by some, for the natural impediment from the structure of the parts, would resist a much more powerful force than can be given to the semen. This secret operation of nature will probably remain a matter of opinion, as no experiment can ever ascertain it in the human subject, and analogy has shown that nature is very various in different animals, some becoming impregnated out of the body, as Fishes, Frogs, &c. The most reasonable supposition to me is, that the Fallopian tubes, take on a kind of peristaltic motion, and thus perform a double office. We might suppose that this could easily be the case, seeing that all the vessels of the body have the power of a retrograde motion.

IT has been said by some, that the venereal orgasm is not necessary to a fruitful connection of the sexes. The strongest argument they have is, the famous experiment of Spallanzani, who artificially impregnated a Bitch by means of a syringe, filled with the semen of a Dog. But we can determine nothing from this experiment, as the Abbé has not told us whether much irritation was produced or not, and very little might have been necessary, as the animal was highly excitable at the time. We know likewise that when the female is not capable of gratification from debility, or against inclination, she is scarcely or ever fruitful.

OF THE CAUSES OF STERILITY.

BARRENNESS is the effect, not the cause of diseases. We will therefore mention the complaints which produce it. We will likewise endeavour to ascertain their proximate causes, that we may be able to remove them. We shall arrange the diseases which we are to consider, under two heads. First, Those which affect the whole system ; and, secondly, those which are of a local nature. Under the first head we might mention all diseases of a violent kind, whether they are seated in the vascular, nervous, or muscular system. They prevent pregnancy, by instituting a stronger impression on the parts, which are necessary to perform the function of generation, than can be made by the semen of the male. These affections so soon terminate either in health, death, or some other disease, that they can scarcely ever be examined into with a view to the question we are considering. I shall confine myself to those that are more the immediate causes of Barrenness by affecting the uterine system. And first of those which have the effect of interrupting the menstrual discharge.

It appears to be the monthly flow of the Menſes that capacitates the human female to become pregnant, at all seasons of the year; and it has been observed, that pregnancy very generally takes place soon after one of the periods of their occurence. The menstrual discharge may be interrupted by two different states of the system, which are designated by the names of Suppression and Retention. The first is their disappearance after they have taken place, when it does not proceed from pregnancy. The latter, when the menstrual flux does not begin to flow at that time of life which it shouſt make its appearance. The first of these diseases consists in a preternatural resistance made to the blood by the vessels of the uterus, and the arterial system in general is found to be too highly toned. This I infer from the pulse, which has too much action, which lays the patient liable to hæmorrhagies from the nose, lungs, stomach, and other parts of the body.

RETENTION is the opposite of Suppression, and depends on a want of irritability in the general, as well as uterine system, and is attended with a consequent chronic debility. The celebrated Dr. Cullen thinks, that it is to be referred to a certain affection or state of the ovaria; but what is precisely the nature of this affection, or what are its causes, he does not pretend to determine. But with due respect to this great man, I shall differ in opinion, and suppose that the state of the ovaria is rather an effect, than the cause, of the disease. This I conclude to be the case from its being a general, and not a local complaint, which it should be if the ovaria were in fault; and if any

part should be primarily affected, it is the stomach, with dyspepsia, which I believe is a universal concomitant of this disease.

OF the causes that are of a local nature we may enumerate the following :

FIRST, A Lusus Naturæ.

SECONDLY, derangements from accidents, and local diseases, which impede the passage of the semen :

AND Thirdly, local debility.

MORGAGNI has shown us, that some women are so defective, as to have no womb ; in others he found this viscus so very small, as not to exceed the size of a child's. He has also mentioned an instance where no ovaria were found ; and we have a number of cases recorded in the histories of morbid anatomy, in which nature was irregular in the disposition of the parts, subservient to the purpose of generation. In pregnancy the pressure of the gravid uterus on the ovaria and tubes against the Ossa In-nominata have produced irrecoverable injury. This sometimes takes place in parturition, and may probably be the reason, that we see so many instances of sterility after the first delivery, where we cannot discover any other probable cause. Issues, Ulcers, Cancers, and Schirri likewise produce barrenness. Vanswieten makes mention of several cases of Schirri that produced this effect, which were not discovered until after death.

NOTHING, says Boerhaave, is more frequent upon opening the bodies of sterile women, than to find a schirrus hardness of the ovary, or a distention of it with hydatids.*

CANCERS are easily known by the shooting pain which attends them. Other Ulcers may be known if they are seated in the womb, by the touch. Hydropic affections of the ovaria, are not easily to be discovered, until they arrive at a considerable size.

LEUCORRHœA is another cause, and is probably primarily a local disease, and dependent on debility. Dr. Cullen thought that this disease could exist but in a slight degree, without injuring the power of procreation.

IT is probable this state of debility prevents pregnancy, in that deluded part of the human race, called women of the town ; but their intemperance in strong drink may often have a share in producing the same effect. This species of intemperance may act in some instances in the married state, but we know the male is not always rendered incapable of procreation by intoxication; witness the case of good old Noah, recorded in the Holy Scripture.

HITHERTO we have been considering the causes that act on the female, let us now advert to those which affect the male. We are very uncertain, whither there are

NOTE.

* Boerh. Lect. on The. of Phys. Page 234. Vol. V.

any diseases which affect the general health of the male, so as to incapacitate him from procreation ; febrile diseases may so alter the secretion of the semen, as to produce this effect, but to treat of them is far from my intention.

A WATERY semen has been supposed to produce an incapacity in the male ; but what can be said of this with certainty, I cannot determine. We find those who live on low diet, as prolific, or more so, than those who live on high seasoned food ; witness the blacks of this country, and the fishermen who live on fish and oysters, &c.

OF the local causes which affect the male are first, a *Lusus Naturæ*, and secondly, defects from injuries and local diseases. Morgagni mentions cases where the urethra opened beneath the glans, and also where it opened on the back of the penis. A preternatural thickness of this organ, or its being too diminutive in size is to be considered as causes. A number of other irregularities are mentioned by authors, as the narrowness of the orifice of the prepuce, and the tying down of the glans by the frœnum, in such a manner as not to admit a free discharge of semen. Injuries from accidents are likewise to be taken notice of, such as the loss of any of the genital parts which may be necessary for coition. The diseases that affect the genitals are various, as the class of *Dyspermatismus* of Nosologists, and the various species of ulcers, which are to be known by inspection.

OF THE SIGNS OF STERILITY.

IT will be a difficult matter to discover whether Sterility is present or not. If it is acquired, we must advert to the several causes which produce it, many of which are so occult as not to be discovered. Those which depend on natural defects are still more obscure, as the health is not thereby injured. Morgagni has mentioned that it is probable, that those men who are naturally without hair on their bodies, will be found to be incapable of procreation; and the case of a man related by Valsalvi, who was naturally without hair, being in that situation, will tend to confirm the opinion. The same author further adds, that in the cases of three women, he was able to discover a perceptible difference in the cutis, which was preternatural from birth. In those cases nothing could be discovered that gave rise to this defect, yet the women were barren, although married to men of excellent constitutions. On examination he found the cutis in one of those persons contrary to what we should have expected from her mode of life, age, and habit of body; it was by no means soft when touched. And in the other two he found the skin covered with a cuticle, that was continually falling off in small scales. Our accurate author observes, that the habit of body of these persons was such, as to produce a change in the secretion of the sebacious glands.

OF THE CURE.

AFTER we have discovered the cause of Barrenness, and know that it proceeds from any of the diseases mentioned, we direct our remedies according to the nature of the disorder we have to remove. We have already said, that many of the local complaints are of so occult a nature, as not to be easily discovered, and when found out, many of them are without a remedy. We are therefore not to expect cures in all cases, and indeed but few of them comparatively speaking, according to the number which occur.

SHOULD suppression be the cause, we endeavour to remove it, and our first indication is to lessen the preternatural tone of the vessels of the uterus, which extends commonly over the whole vascular system, and is attended with plethora. This must be taken down by blood letting, and other depleting remedies. It is said that an opposite state of the system may produce the same effect. Should this ever be the case, there will be no necessity of depletion. Our chief remedy, after the tone of the system is lessened, and the plethora removed, is the warm bath, or sitting over the steam of water, which is an excellent mode of applying this remedy, and which acts by relaxing the coats of the arteries, whilst the sti-

mulus of the warmth increases their action. Some Physicians have advised stimulants to be administered with this intention, but they will scarcely ever be of service, when the remedy above recommended has failed.

IN case of retention, where there is a want of excitement, and the opposite state of the system prevails to that of suppression, our chief remedies are stimulants and tonics ; the exercise of the lower limbs in walking or dancing is highly serviceable. The exercise of venery is recommended as a stimulus to the uterus when it is admissible. Electricity is also highly spoken of ; the uterus may be stimulated by shocks passed through the pelvis.

THE same state of the system may produce barrenness, and the flow not be suppressed ; our remedies are the same, being such as promote strength, as aliment of a nutricious nature, the martial mineral waters, and the class of bitters. It was in this state of the system, that the ancient class of remedies, called sterilitas were of service, which were of a balsamic nature, and the nostrums of the present day for this affection, are of the stimulating kind. The practice also of the good women of this, as well as some other countries, is the indiscriminate use of this class of remedies. Hasselquist informs us, that the Egyptian women drink a cup-full of clove water upon going to bed, for this complaint, and we may suppose not without success.

MEDICINES will be of little service in barrenness that proceeds from local diseases, except when it is produced by local debility, in which case we should always endea-

your to remove the exciting causes, and when this is done the strictest attention should be paid to cleanliness. The cold bath applied to the parts immediately affected will commonly remove this complaint.

WE cannot say much of the causes which affect the male. Impotency is generally considered as incurable.

IN case of too great irritability of the genitals, brought on by the baneful practice of Onanism, matrimony has been found to be of the most service, and the tonics recommended by most authors, are not near so effectual, and often prejudicial. The knife must be used, when either the orifice of the prepuce is too small to admit the free discharge of the semen, or the glans too much tied down by the frenum. The affections of the testicles and penis by diseases, are to be treated as their different cases may require, according to the opinion of the Surgeon.

